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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

MOORE, PATRICK M

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| ART UNIT | PAPER NUMBER |
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2188

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/783,757

Applicant(s)

ABDELILAH ET AL.

Examiner

Patrick M. Moore

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>02/20/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-30 have been examined

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by So (US Patent # 6,148,389).

- a. **As per Claim 1**, So discloses a method for facilitating inter-digital signal processing (DSP) data communications comprising the steps of: reading a first data structure associated **[Figure 21]** with a block of local memory in a first DSP processor core in a complex comprising a plurality of DSP processor cores **[Column 1, Lines 44-50 & Column 2, Lines 29-35]**, wherein said first data structure comprises a first source address indicating a first address of where data is stored in said local memory of said first DSP processor core **[Figure 21 & Column 16, Lines 8-18]**, wherein said first data structure further comprises an indication of a size of a block of memory **[“Regions cannot exceed 128KB” of Figure 25]**, wherein said first data structure further comprises a first destination address indicating a second address of where data is to be stored in a local memory of a second DSP processor core **[Figure 21 & Column 16, Lines 8-18]**; and initiating a transfer of moving data said size of said block of memory located

in said first source address in said local memory of said first DSP processor core to said first destination address in said local memory of said second DSP processor core **[Column 13, Lines 1-23]**.

- b. **As per Claim 2**, So further discloses the method as recited in claim 1 further comprising the steps of: obtaining a pointer to a second data structure from said first data structure **[“Linked List” of Figure 22]**; reading said second data structure, wherein said second data structure comprises a second source address of one of a read pointer and a write pointer, wherein said second data structure further comprises a second destination address of one of said read pointer and said write pointer **[Figure 21 & Column 16, Lines 8-18]**. *As is well known in the art, a linked list, such as the ones disclosed by So [Column 23, Lines 8-17], includes data structure entries which point from a preceding structure (e.g. Applicant’s claimed “first data structure”) to a subsequent structure (e.g. Applicant’s claimed “second data structure”, “third...”, etc.).*
- c. **As per Claim 3**, So further discloses the method as recited in claim 2 further comprising the step of: initiating a transfer of said write pointer located in said second source address in said local memory of said first DSP processor core to said second destination address in said local memory of said second DSP processor core **[Column 13, Lines 1-23]**.
- d. **As per Claim 4**, So further discloses the method as recited in claim 2 further comprising the step of: initiating a transfer of said read pointer located in said

second source address in said local memory of said second DSP processor core to said second destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.

- e. **As per Claim 5**, So further discloses the method as recited in claim 2 further comprising the steps of: obtaining a pointer to a third data structure from said second data structure **[“Linked List” of Figure 22]**; reading said third data structure, wherein said third data structure comprises a third source address of one of a read pointer and a write pointer, wherein said third data structure further comprises a third destination address of one of said read pointer and said write pointer **[Figure 21 & Column 16, Lines 8-18]**.
- f. **As per Claim 6**, So further discloses the method as recited in claim 5 further comprising the steps of: initiating a transfer of said write pointer located in said second source address in said local memory of said first DSP processor core to said second destination address in said local memory of said second DSP processor core; and initiating a transfer of said read pointer located in said third source address in said local memory of said second DSP processor core to said third destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.
- g. **As per Claim 7**, So further discloses the method as recited in claim 5 further comprising the steps of: initiating a transfer of said write pointer located in said third source address in said local memory of said first DSP processor core to

said third destination address in said local memory of said second DSP processor core; and initiating a transfer of said read pointer located in said second source address in said local memory of said second DSP processor core to said second destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.

- h. **As per Claim 8**, So further discloses the method as recited in claim 2 further comprising the steps of: converting a local address of said write pointer to a global address **[Column 19, Lines 1-11]**; and computing said first source address in said first data structure, wherein said first source address is equal to said size of a block of memory subtracted from said global address of said write pointer **[Figure 24 & Column 23, Lines 1-7 & 23-34]**. *Examiner understands a calculation to find the pointer position of "Region Record N" requires both the "Length" and "Pointer" information of Region Record N-1.*
- i. **As per Claim 9**, So further discloses the method as recited in claim 8 further comprising the steps of: reading said local address of said write pointer; and copying said local address of said write pointer into an entry in a third data structure located in said first DSP processor core **[Column 13, Lines 1-23]**.
- j. **As per Claim 10**, So further discloses the method as recited in claim 8 further comprising the steps of: reading a local address of said read pointer; and copying said local address of said read pointer into an entry in a third data structure located in said second DSP processor core **[Column 13, Lines 1-23]**.

- k. **As per Claim 11**, So discloses a computer program product embodied in a machine readable medium for facilitating inter-digital signal processing (DSP) data communications comprising the programming steps of: reading a first data structure associated **[Figure 21]** with a block of local memory in a first DSP processor core in a complex comprising a plurality of DSP processor cores **[Column 1, Lines 44-50 & Column 2, Lines 29-35]**, wherein said first data structure comprises a first source address indicating a first address of where data is stored in said local memory of said first DSP processor core **[Figure 21 & Column 16, Lines 8-18]**, wherein said first data structure further comprises an indication of a size of a block of memory **[“Regions cannot exceed 128KB” of Figure 25]**, wherein said first data structure further comprises a first destination address indicating a second address of where data is to be stored in a local memory of a second DSP processor core **[Figure 21 & Column 16, Lines 8-18]**; and initiating a transfer of moving data said size of said block of memory located in said first source address in said local memory of said first DSP processor core to said first destination address in said local memory of said second DSP processor core **[Column 13, Lines 1-23]**.
- l. **As per Claim 12**, So further discloses the computer program product as recited in claim 11 further comprising the programming steps of: obtaining a pointer to a second data structure from said first data structure **[“Linked List” of Figure 22]**; reading said second data structure, wherein said second data structure comprises a second source address of one of a read pointer and a write pointer,

wherein said second data structure further comprises a second destination address of one of said read pointer and said write pointer **[Figure 21 & Column 16, Lines 8-18]**.

- m. **As per Claim 13**, So further discloses the computer program product as recited in claim 12 further comprising the programming step of: initiating a transfer of said write pointer located in said second source address in said local memory of said first DSP processor core to said second destination address in said local memory of said second DSP processor core **[Column 13, Lines 1-23]**.
- n. **As per Claim 14**, So further discloses the computer program product as recited in claim 12 further comprising the programming step of: initiating a transfer of said read pointer located in said second source address in said local memory of said second DSP processor core to said second destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.
- o. **As per Claim 15**, So further discloses the computer program product as recited in claim 12 further comprising the programming steps of: obtaining a pointer to a third data structure from said second data structure **[“Linked List” of Figure 22]**; reading said third data structure, wherein said third data structure comprises a third source address of one of a read pointer and a write pointer, wherein said third data structure further comprises a third destination address of one of said read pointer and said write pointer **[Figure 21 & Column 16, Lines 8-18]**.

- p. **As per Claim 16**, So further discloses the computer program product as recited in claim 15 further comprising the programming steps of: initiating a transfer of said write pointer located in said second source address in said local memory of said first DSP processor core to said second destination address in said local memory of said second DSP processor core; and initiating a transfer of said read pointer located in said third source address in said local memory of said second DSP processor core to said third destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.
- q. **As per Claim 17**, So further discloses the computer program product as recited in claim 15 further comprising the programming steps of: initiating a transfer of said write pointer located in said third source address in said local memory of said first DSP processor core to said third destination address in said local memory of said second DSP processor core; and initiating a transfer of said read pointer located in said second source address in said local memory of said second DSP processor core to said second destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.
- r. **As per Claim 18**, So further discloses the computer program product as recited in claim 12 further comprising the programming steps of: converting a local address of said write pointer to a global address **[Column 19, Lines 1-11]**; and computing said first source address in said first data structure, wherein said first source address is equal to said size of a block of memory subtracted from said

global address of said write pointer **[Figure 24 & Column 23, Lines 1-7 & 23-34]**.

- s. **As per Claim 19**, So further discloses the computer program product as recited in claim 18 further comprising the programming steps of: reading said local address of said write pointer; and copying said local address of said write pointer into an entry in a third data structure located in said first DSP processor core **[Column 13, Lines 1-23]**.
- t. **As per Claim 20**, So further discloses the computer program product as recited in claim 18 further comprising the steps of: reading a local address of said read pointer; and copying said local address of said read pointer into an entry in a third data structure located in said second DSP processor core **[Column 13, Lines 1-23]**.
- u. **As per Claim 21**, So discloses a system, comprising: a plurality of digital signal processing (DSP) units; a direct memory access controller coupled to said plurality of DSP processor cores **[Figure 3, #316]**, wherein said direct memory access controller comprises: a memory unit operable for storing a computer program for facilitating inter-DSP data communications **[Figure 2, #112, #104 & Column 9, Lines 51-62]**; and a processor coupled to said memory unit **[Figure 2, #102 & Column 9, Lines 51-62]**, wherein said processor, responsive to said computer program, comprises: circuitry operable for reading a first data structure associated **[Figure 21]** with a block of local memory in a first DSP processor

core, wherein said first data structure comprises a first source address indicating a first address of where data is stored in said local memory of said first DSP processor core **[Figure 21 & Column 16, Lines 8-18]**, wherein said first data structure further comprises an indication of a size of a block of memory **["Regions cannot exceed 128KB" of Figure 25 and "Length" of Figure 24]**, wherein said first data structure further comprises a first destination address indicating a second address of where data is to be stored in a local memory of a second DSP processor core **[Figure 21 & Column 16, Lines 8-18]**; and circuitry operable for initiating a transfer of moving data said size of said block of memory located in said first source address in said local memory of said first DSP processor core to said first destination address in said local memory of said second DSP processor core **[Column 13, Lines 1-23]**.

- v. **As per Claim 22**, So further discloses the system as recited in claim 21, wherein said processor further comprises: circuitry operable for obtaining a pointer to a second data structure from said first data structure **["Linked List" of Figure 22]**; circuitry operable for reading said second data structure, wherein said second data structure comprises a second source address of one of a read pointer and a write pointer, wherein said second data structure further comprises a second destination address of one of said read pointer and said write pointer **[Figure 21 & Column 16, Lines 8-18]**.

- w. **As per Claim 23**, So further discloses the system as recited in claim 22, wherein said processor further comprises: circuitry operable for initiating a transfer of said

write pointer located in said second source address in said local memory of said first DSP processor core to said second destination address in said local memory of said second DSP processor core **[Column 13, Lines 1-23]**.

- x. **As per Claim 24**, So further discloses the system as recited in claim 22, wherein said processor further comprises: circuitry operable for initiating a transfer of said read pointer located in said second source address in said local memory of said second DSP processor core to said second destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.
- y. **As per Claim 25**, So further discloses the system as recited in claim 22, wherein said processor further comprises: circuitry operable for obtaining a pointer to a third data structure from said second data structure **["Linked List" of Figure 22]**; circuitry operable for reading said third data structure, wherein said third data structure comprises a third source address of one of a read pointer and a write pointer, wherein said third data structure further comprises a third destination address of one of said read pointer and said write pointer **[Figure 21 & Column 16, Lines 8-18]**.
- z. **As per Claim 26**, So further discloses the system as recited in claim 25, wherein said processor further comprises: circuitry operable for initiating a transfer of said write pointer located in said second source address in said local memory of said first DSP processor core to said second destination address in said local memory of said second DSP processor core; and circuitry operable for initiating a transfer

of said read pointer located in said third source address in said local memory of said second DSP processor core to said third destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.

aa. **As per Claim 27**, So further discloses the method as recited in claim 25, wherein said processor further comprises: circuitry operable for initiating a transfer of said write pointer located in said third source address in said local memory of said first DSP processor core to said third destination address in said local memory of said second DSP processor core; and circuitry operable for initiating a transfer of said read pointer located in said second source address in said local memory of said second DSP processor core to said second destination address in said local memory of said first DSP processor core **[Column 13, Lines 1-23]**.

bb. **As per Claim 28**, So further discloses the system as recited in claim 22, wherein said first DSP processor core comprises: a second memory unit operable for storing a computer program for performing background tasks; and a second processor coupled to said second memory unit, wherein said second processor, responsive to said computer program, comprises: circuitry operable for converting a local address of said write pointer to a global address **[Column 19, Lines 1-11]**; and circuitry operable for computing said first source address in said first data structure, wherein said first source address is equal to said size of a block of memory subtracted from said global address of said write pointer **[Figure 24 & Column 23, Lines 1-7 & 23-34]**.

cc. **As per Claim 29**, So further discloses the system as recited in claim 28, wherein said second processor further comprises: circuitry operable for reading said local address of said write pointer; and circuitry operable for copying said local address of said write pointer into an entry in a third data structure located in said first DSP processor core [**Column 13, Lines 1-23**].

dd. **As per Claim 30**, So further discloses the system as recited in claim 28, wherein said second DSP processor core comprises: a third memory unit operable for storing a computer program for performing background tasks; and a third processor coupled to said third memory unit, wherein said third processor, responsive to said computer program, comprises: circuitry operable for reading a local address of said read pointer; and circuitry operable for copying said local address of said read pointer into an entry in a third data structure located in said second DSP processor core [**Column 13, Lines 1-23**].

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Morton (US Patent # 6,088,783) discloses multiple DSP chips to share processing loads in parallel. Brown (US Patent # 6,012,136) discloses simultaneous DSP processing and copying to/from program and data memories.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick M. Moore whose telephone number is (571) 272-1239. The examiner can normally be reached on M-F 8:30AM - 5:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabahn can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PMM


3/31/06

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER